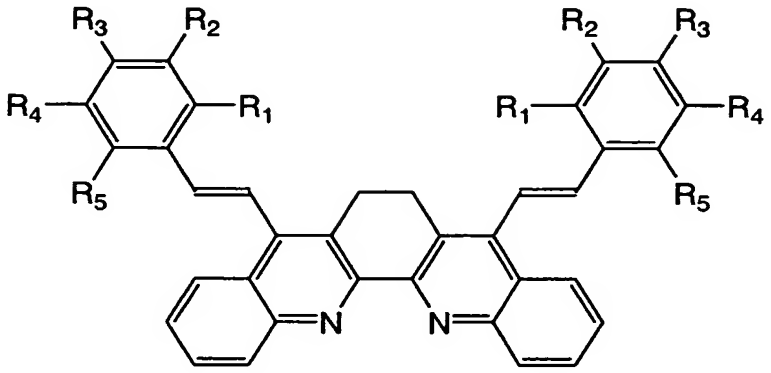
CLAIMS

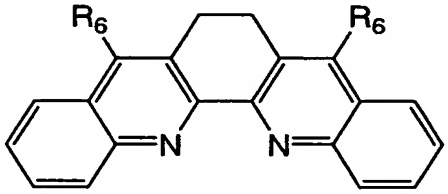
1. A phenanthroline derivative represented by a general formula (1),



(1)

wherein each of R_1 to R_5 is selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 4 carbon atoms and a halogen group.

2. An electron injecting material represented by a general formula (2),



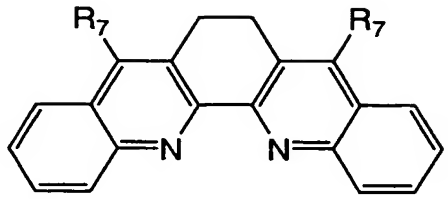
(2)

wherein R_6 is selected from the group consisting of an alkyl group having 1 to 4 carbon atoms, an alkenyl group having 1 to 4 carbon atoms, and an aryl group having 6 to 10 carbon atoms.

3. A light-emitting element comprising the phenanthroline derivative according to claim 1 and at least one element selected from alkali metals and alkali-earth metals.

4. A light-emitting element comprising a layer including a phenanthroline

derivative represented by a general formula (3) and at least one element selected from alkali metals and alkali-earth metals,



(3)

wherein R_7 is selected from the group consisting of an alkyl group having 1 to 4 carbon atoms, an alkenyl group having 1 to 4 carbon atoms, and an aryl group having 6 to 10 carbon atoms.

5. A light-emitting device comprising the light-emitting element according to claim 3 and 4.

6. A light-emitting device that has a display function, comprising a pixel portion in which a circuit including the light-emitting element according to claim 3 and 4 is arranged.

7. An electronic device using the light-emitting device according to claim 5 for a display portion.

8. An electronic device using the light-emitting device according to claim 6 for a display portion.